



The coincidence of facial pain  
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PNEUMOTHORAX PRODUCED BY PHYSICAL  
EXERTION.

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Pneumothorax produced by Physical Exertion. By  
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Some months ago a medical student consulted me on account of a considerable degree of breathlessness. He stated that two or three days previously, while taking exercise with dumb-bells weighing 8 lbs., he was suddenly attacked by a feeling of something giving way within the chest, which was immediately followed by the rapid development of breathlessness. Until this occurrence he believed that he was enjoying excellent health, and certainly had not been troubled by any symptoms of disease. He presented a considerable degree of cyanosis, his complexion being livid, and his mucous membranes dark in colour. His breath was accelerated and forced. The pulse was somewhat more frequent than normal. When the patient was stripped it was seen that the entire skin exposed had a cyanotic aspect. The movements of the chest, although quickened, were everywhere uniform, and there was no abnormality in conformation. The two sides of the thorax preserved their natural relationship in size, the right being from  $\frac{1}{2}$  to  $\frac{3}{4}$  of an inch larger in circumference than the left. On palpation, the vocal fremitus was deficient over the lower part of the right side of the chest. On percussion, the sound produced was everywhere healthy in all respects, excepting over the right postero-lateral region of the chest, extending from the angle of the scapula downwards to the margin of the lung, where an area, conical in shape, with its apex towards the scapula and its base at the pulmonary border, gave a perfectly clear tympanitic percussion sound. On auscultation of the lungs, the respiratory murmur and the vocal resonance were everywhere perfect, save over the region just mentioned, where the breath sounds were almost inaudible, and the vocal resonance was extremely feeble. On tapping

two coins together at a point over the anterior boundary of the tympanitic area, and listening at its posterior margin, a clear ringing bell- or anvil-sound was elicited. The most careful examination of the chest failed to give any evidence of splashing sueeussion sounds. Change of position produced no alteration in the situation of the physical signs. There were no subjective or objective symptoms of disease elsewhere, and there was no change in the position of the heart or any other organ.

It seemed to me that in this particular instance there had been a spontaneous development of pneumothorax from excessive exertion, to which the patient had not been previously accustomed, but the explanation of the mechanism, by means of which the condition had been produced, was by no means clear. Two possibilities presented themselves to my mind. The pneumothorax might, in the first place, have been produced by the rupture of some emphysematous vesicle, acutely produced under the strain to which the chest had been subjected, as occasionally occurs in the course of whooping-cough; or, in the second place, the patient might have been the subject of some pleural adhesions, and the forcible movements of the chest might have caused a tearing of the lung tissue. In the light of the localised nature of the pneumothorax, the latter explanation appeared to me much more probable than the former, and it was therefore adopted. In order to obtain the benefit of another opinion, the patient met me later on in the course of the same day at the Royal Infirmary, when Dr. Wyllie kindly examined him along with me, and concurred in all respects in the diagnosis which had been arrived at. We recommended the patient to rest quietly at home, and to confine himself for the most part to bed. He was visited by me at his own house from time to time, and within a fortnight every symptom of the disease had disappeared.

Pneumothorax produced by spontaneous rupture of the lung is by no means unknown. Its occurrence has been described by McDowell, in the case of a man who had undergone considerable physical exertion; by Biermer, in a patient who was attacked while dancing; by Thorburn, who found it to have developed in a patient during sleep three days after

severe exertion while rowing; by Flint, in a pedlar, who, on two successive occasions, was attacked by pneumothorax while carrying a burden; by Vogel, as a sequel to an attack of bronchitis; and by Fräntzel, in a man who produced the affection by moving a heavy barrel. It may be added that Thorburn mentions another case which was verbally reported to him by Noble, and that his own case was afterwards under the observation of Gairdner, who has fully described it.

In all of the instances described by these authors recovery took place. This fortunate event, however, has not invariably occurred. Erichsen, for example, described an instance of pneumothorax, produced by carrying a heavy beam, in which secondary changes occurred, resulting in empyema which caused the death of the patient.

In some cases, as in that described by Vogel, there seems to have been evidence of previous pulmonary disease. In the majority, however, there was no such antecedent, and in all cases of this kind it must be a matter of inference whether the pneumothorax has taken its origin in the rupture of emphysematous vesicles, or, as was suggested by me in explaining the case which has been described above, by the existence of adhesions which have led to tearing of the lung substance. The most interesting point in the case above described is without doubt the fact of the localised character of the physical signs, which can only be accounted for by the assumption of adhesions such as would result from previous pleuritic changes.

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